

ABSTRACT

An apparatus and method are disclosed for providing a seal between first and second relatively rotatable parts of machines such as screw conveyors and the like which operate in an environment comprising dust, grit or other finely divided solid material entrained in air, water or other fluid. The seal comprises a rotor and a stator between which there is an annular passage with substantial clearance between the interfacing surfaces defining the passage. The solid material entrained in the fluid which enters the annular passage is deposited in layers on the interfacing surfaces when the mechanism is in use. The layers substantially reduce the cross sectional size of the annular passage and restrict flow of the fluid therethrough. The annular passage may be rendered tortuous by providing the rotor with annular fins which in use project into annular recesses in the stator, and vice versa. The minimum value of the clearance between the interfacing surfaces is not substantially less than 0.4 mm and the ratio of this clearance to the minimum diameter of the annular passage is not substantially less than 1:150. The ratio of the length of the annular passage to the minimum diameter of the annular passage is not substantially less than 1:2. The ratio of the width of the widest of the interfacing surfaces to the minimum diameter of the annular passage is not substantially less than 1:20.